User Manual

TPHD403PL

PTN HDMI Pro Extender with PoC

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Version: TPHD403PL_2014V1.0

SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.

NOTICE: Please read this user manual carefully before using this product. Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

This manual is only for operation instruction only, not for any maintenance usage. The functions described in this version are updated till March 2014. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

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All product function is valid till 2014-03-04.

Table of Contents

1. Introduction 1
1.1 Introduction to TPHD403PL 1
1.2 Features 1
1.3 Package Contents 1
2. Introduction of Product Appearance 2
2.1 Product Appearance of TPHD403PLT 2
2.2 Product Appearance of TPHD403PLR 2
2.3 Twisted Pair Cable Connection 4
3. System Connection 4
3.1 Usage Precautions 4
3.2 System Diagram 1
3.3 Connection Procedure 1
3.4 System Applications 2
4. Specification 2
5. Panel Drawing 4
6. Troubleshooting & Maintenance 5
7. After-sales Service 6

1. Introduction

1.1 Introduction to TPHD403PL

TPHD403PL is an HDMI/IR/RS232 twisted pair extender including one transmitter (TPHD403PLT) and one receiver (TPHD403PLR). It is a professional 1x1 extender, with a single CAT5e cable, the input HDMI signal can be long-distance transmitted, and the control signal (IR & RS232) is able to work in a bi-directional way. With its Ethernet ports, TPHD403PL also supports internet access to work in a LAN.

1.2 Features

- HDBaseT technology, Max transmission distance for 1080P signals is up to 90 meters with single CAT5e/CAT6 cable.
- High Bandwidth: 10.2Gps.
- Support CEC.
- HDMI/IR/RS232 signal transmitted over single CAT5e/CAT6 twisted pair.
- Support 4Kx2K (max) resolution for HDMI signals with distant transmission, 4Kx2K signals can be transmitted as long as 60m via CAT6.
- Support Ethernet expanding.
- TPHD403PLT is equipped with 1 local HDMI output.
- Support PoC, can be energized bi-directionally.
- HDTV Compatible, use HDMI 1.4a and HDCP compliant.
- Bi-directional RS232 control.
- Bi-directional IR control.
- LED indicators show work status: Power, On, In /Out, Link.
- Support hot-plug

Note: Please use a CAT5e/CAT6 cable with low impedance (Shielded twisted pair will be better and should be well grounded) for good transmission effect.

1.3 Package Contents

- 1 x TPHD403PLT
- 1 x TPHD403PLR
- 4 x Mounting ears (Separated from TPHD403PLT and TPHD403PLR)
- 1 x Power adapter (DC 24V)
- 8 x Plastic cushions
- 2 x RS232 cable
- 8 x Screws (3*6mm)
- 1 x User manual

Notes：Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Introduction of Product Appearance

2.1 Product Appearance of TPHD403PLT

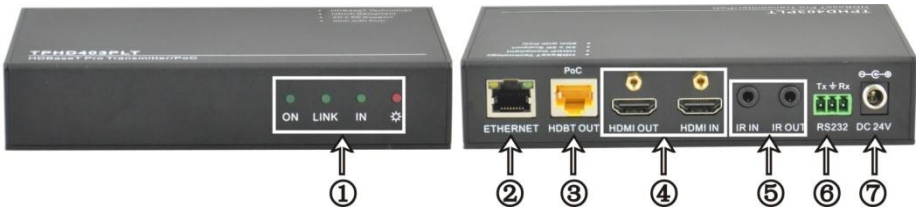


Figure 1 Interfaces of TPHD403PLT

No.	Name	Description
①	On Link In Power	✓ On: Used to show the working status, blinks when in normal working state, turn off when stop working. ✓ Link: Twisted Pair Link status indicator. It will keep on when connection is successful. ✓ In: When connected with device which supports HDCP and works normally, this LED will keep on. If the transmitted signal does not support HDCP, the LED indicator will blink. ✓ Power: Turn red and keep on when power on.
②	ETHERNET	Ethenet port, connect with a router, to work as exchanger along with the two ETHERNET ports of TPHD403PLR. If they are connected, the yellow LED indicators on the corresponding ports will keep on and the green ones will blink when working.
③	HDBT OUT	Connect with the HDBT IN port of TPHD403PLR by using a single CAT5e cable (90m length in max).
④	HDMI OUT HDMI IN	HDMI OUT: HDMI output port, connect with an HDMI displayer. HDMI IN: HDMI input port, connect with an HDMI source device.
⑤	IR IN&OUT	✓ IN: Connect with IR receiver, receive IR signals and send them via cable to the other end of the cable, for example the IR OUT port of TPHD403PLT. ✓ OUT: Connect with IR Emitter, transmit IR signals sent via cable.
⑥	RS232	Serial port, 3-pin captive screw connector, connect with the control terminal to control the controlled terminal, supports bi-directional RS232 control between the transmitter (TPHD403PLT) and the receiver (TPHD403PLR).
⑦	DC 24V	Connect with a DC 24V power adapter. (Either TPHD403PLT or TPHD403PLR connecting with power adapter is enough.)

2.2 Product Appearance of TPHD403PLR

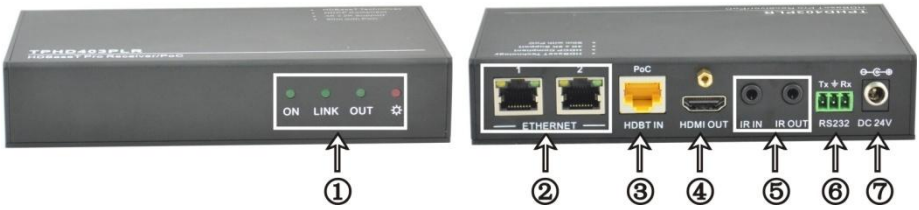


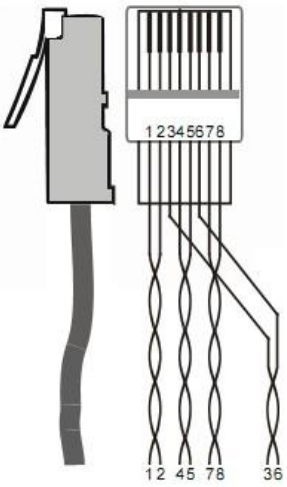
Figure 2 Interfaces of TPHD403PLR

No.	Name	Description
①	On Link Out Power	✓ On: Used to show the working status, blinks when in normal working state, turns off when stop working. ✓ Link: Twisted Pair Link status indicator. It will keep on when the connection is successful. ✓ Out: When connected with device which supports HDCP and works normally, this LED will keep on. If the transmitted signal does not support HDCP, the LED will blink. ✓ Power: Turn red and keep on when power on.
②	ETHERNET	Ethenet ports, connect with a router, to work as exchanger along with the ETHERNET port of TPHD403PLT. If they are well connected, the yellow LED indicators on the corresponding ports will keep on and the green ones will blink when working.
③	HDBT IN	To connect with the HDBT OUT port of TPHD403PLT by using a single CAT5e cable (90m length in max).
④	HDMI OUT	HDMI output port, connect with an HDMI displaying device.
⑤	IR IN&OUT	✓ IN: Connect with IR receiver, receive IR signals and send them via cable to the other end of the cable, for example the IR OUT port of TPHD403PLT. ✓ OUT: Connect with IR Emitter, transmit IR signals sent via cable.
⑥	RS232	Serial port, 3-pin captive screw connector, connects with the control terminal to control the controlled terminal, supports bi-directional RS232 control between the transmitter (TPHD403PLT) and the receiver (TPHD403PLR).
⑦	DC 24V	Connect with a DC 24V power adapter. (Either TPHD403PLT or TPHD403PLR connecting with power adapter is enough.)

2.3 Twisted Pair Cable Connection

The twisted pair used in TPHD403PL MUST be a straight-through cable. The connectors can be T568A or T568B, but both sides must be the same.

TIA/EIA T568A			TIA/EIA T568B	
Pin	Cable color		Pin	Cable color
1	green white		1	orange white
2	green		2	orange
3	orange white		3	green white
4	blue		4	blue
5	blue white		5	blue white
6	orange		6	green
7	brown white		7	brown white
8	brown		8	brown
1st Ground	4--5		1st Ground	4--5
2nd Ground	3--6		2nd Ground	1--2
3rd Group	1--2		3rd Group	3--6
4th Group	7--8		4th Group	7--8



3. System Connection

3.1 Usage Precautions

Please cut off the power of the HDMI source device and the output displaying device before accessing with TPHD403PL, as it may damage to TPHD403PL. Ensure that all connections (including the power cord) are done before turning on the power to work with TPHD403PL.

3.2 System Diagram

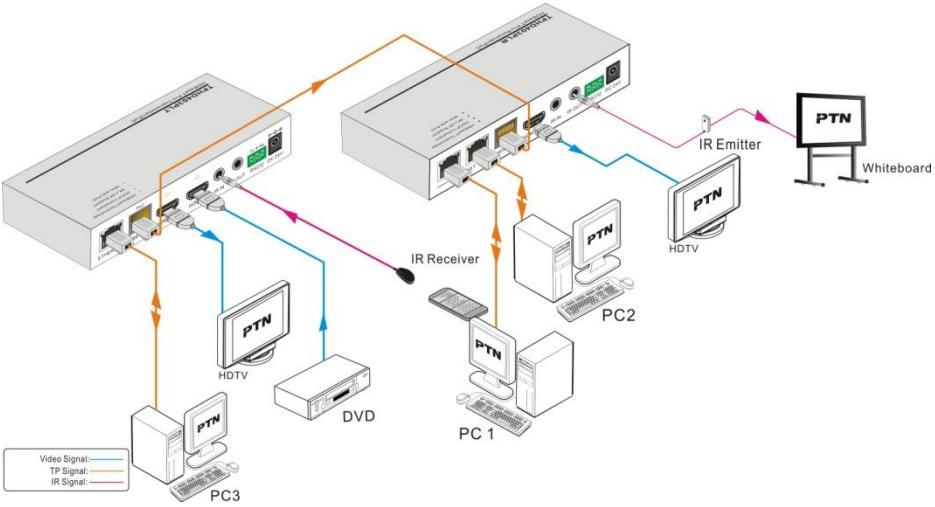


Figure 3 System Diagram

3.3 Connection Procedure

Step1. Connect HDMI source (such as DVD player) to HDMI IN port of the transmitter TPHD403PLT with HDMI cable.

Step2. Connect HDBT OUT port of TPHD403PLT and HDBaseT port of TPHD403PLR, with single CAT5e cable.

Step3. Connect HDMI displayer (such as HDTV) to HDMI OUT port of TPHD403PLR with HDMI cable.

Step4. Both TPHD403PLT and TPHD403PLR have IR IN and OUT. When one model use for IR signal receiver, the IR signal must be sent out by the other model.

For example: When “IR IN” of TPHD403PLT connects with an IR receiver, the IR Emitter must be connected to “IR OUT” of TPHD403PLR.

Step5. To expand the Ethernet, one of the three ETHERNET ports of TPHD403PLT and TPHD403PLR should be used for Internet access, and the others can be connected with computers.

Step6. Connect the RS232 port of the computer and the RS232 port of TPHD403PLT or TPHD403PLR (any one is able to work as the RS232 signal can be transmitted bi-directionally) by using a RS232 cable.

Step7. Connect DC24V power adaptors to either TPHD403PLT or TPHD403PLR.

3.4 System Applications

As its good performance in control and transmission, TPHD403PL can be widely used in computer realm, monitoring, large screen displaying, conference system, education and bank securities institutions etc.

4. Specification

Model / Spec	TPHD403PLT	TPHD403PLR
Input		
Input Signal	1 HDMI,1 IR in, 1 RS232	1 IR in, 1 HDBaseT, 1 RS232
Input Connector	1 HDMI female 1 3.5mm mini jack for IR in 1 3P captive connector	1 3.5mm mini jack for IR in 1 RJ-45 1 3P captive connector
Video Signal	HDMI1.4a	HDMI1.4a
Audio	Digital audio, transmit through HDMI audio	Digital audio, transmit through HDMI audio
Output		
Output	1 HDBaseT, 1 IR out, 1 RS232, 1 HDMI	1 HDMI, 1 IR out, 1 RS232
Output Connector	1 RJ-45 1 3.5mm mini jack for IR out 1 3P captive connector 1 HDMI female	1 HDMI female 1 3.5mm mini jack for IR out 1 3P captive connector
Video signal	HDMI1.4a	HDMI1.4a
Transmission Mode	HDBaseT	
Ethernet Port		
Connector	2 RJ45	2 RJ45
Ethernet Transmission Speed	Adaptive 10M/100M (max), full duplex or half duplex.	
General		
Resolution	800x600@60Hz, 1024x768@Hz, 1280x720@60Hz, 1280x1024@60Hz, 1366x768@60Hz, 1600x1200@60Hz, 1920x1080@60Hz, 1920x1200@60Hz, 3D, 4K×2K	
Transmission Distance	Max distance 90m	
SNR	>70dB	
Bandwidth	10.2Gbps	
HDMI Standard	Support HDMI1.4a and HDCP	

Impedance	75Ω	
Temperature	-10 ~ +40℃	
Humidity	10% ~ 90%	
Power Supply	Input: 100VAC ~ 240VAC, 50/60Hz Output: DC 24V, 1.25A	
Power Consumption	15W	
Dimension (W*H*D)	152x 28x 84 mm	152x 28x 84 mm
Net Weight	0.8Kg	0.8Kg

5. Panel Drawing

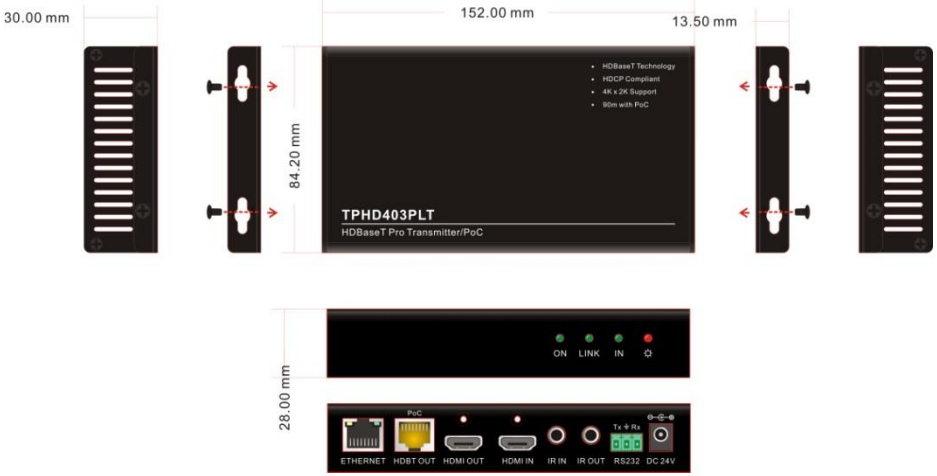


Figure 4 Panel Drawing of TPHD403PLT

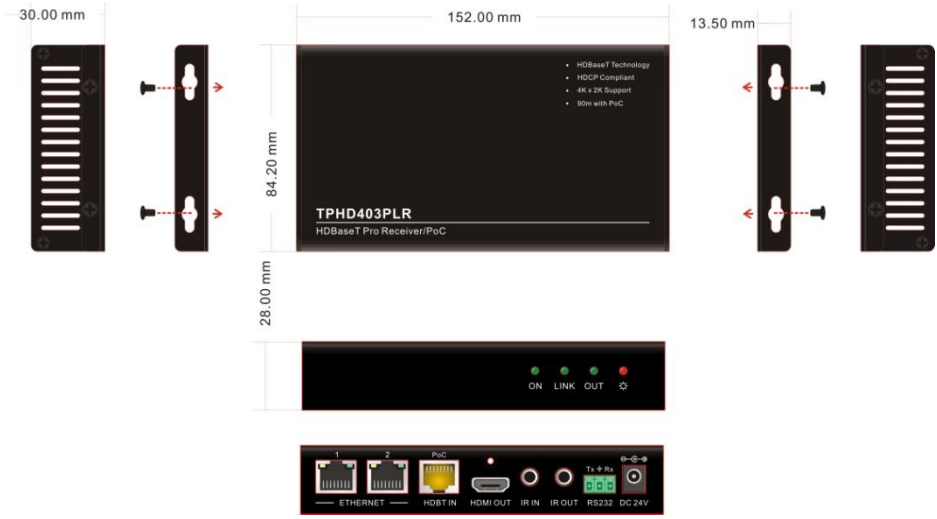


Figure 5 Panel Drawing of TPHD403PLR

6. Troubleshooting & Maintenance

Problems	Causes	Solutions
Output images in display show with ghost	Incorrect setting on the display	Check the display's setting
	A cable of bad quality	Try another high quality connection cable
No output image when switching	No signal at the input / output end	Check with oscilloscope or multimeter if there is any signal at the input / output end.
	Fail or loose connection	Make sure the connection is good
	The extender is broken	Send it to authorized dealer for repairing.
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong RS232 communication parameters	Make sure the RS232 communication parameters are correct.
	The device has already been broken	Send it to authorized dealer for repairing.
Cannot recognize device connected to the ETHERNET port	The connected device has the same IP address with the extender	Change the IP address of the extender or the connected device.
Static becomes stronger when connecting the video connectors	Bad grounding	Check the grounding and make sure it is connected well.
Cannot control the device by RS232 / IR	The device has already been broken	Send it to authorized dealer for repairing.

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

7. After-sales Service

If there appear some problems when running the device, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.

1) **Product Limited Warranty:** PTN warrants that its products will be free from defects in materials and workmanship for **three years,** which starts from the first day you buy this product (The purchase invoice shall prevail).
   Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.
2) **What the warranty does not cover:**
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - Normal wear and tear
     - Use of supplies or parts not meeting our specifications
     - No certificate or invoice as the proof of warranty.
     - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - Damage caused by force majeure.
     - Servicing not authorized by PTN
     - Any other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product
3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor, or email PTN at: support@PTN-electronics.com.

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